

DRAWINGS ATTACHED

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(72) Inventor ALLAN ERNEST PICKERING



(54) MOTOR VEHICLE WITH HANDBRAKE LEVER
 MOUNTED THEREON

(71) We, VAUXHALL MOTORS LIMITED, a British Company of Luton, Bedfordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to motor vehicles having a handbrake lever mounted thereon.

A motor vehicle according to the invention has a handbrake lever pivotally mounted on the floor and/or transmission tunnel of the vehicle, in which the lever is pivotable about a substantially horizontal axis between a brake release position and a brake operating position, and is mounted in such a position relative to the front seat mounting that the lever abuts or nearly abuts, when in a substantially upright position, the front of the seat cushion when the seat is in its furthest forward adjusted position on its mounting; and the lever has a handle portion which is inclined relative to the remainder of the lever so that it extends at least partly around the front of the seat cushion, in its furthest forward position, when the lever is in the substantially upright position.

In the case of a front-engine vehicle having rear wheel drive, the lever may be mounted on the transmission tunnel of the vehicle, for example on a side wall of the tunnel.

It is preferred that the handle portion of the lever should include a Tee-piece for easy operation of the lever by the driver. Moreover, a push-button may be slidably mounted within one arm of the Tee-piece to operate a handbrake release mechanism.

Depending on the relative locations of the furthest forward position of the front seat and the pivotal mounting of the handbrake lever, the handle portion may be inclined rearwardly of the remainder of the lever when the latter is substantially upright.

The invention will now be particularly described with reference to the accompanying drawings, in which:

Figure 1 is a side elevational view of a floor mounted handbrake lever in a motor vehicle;

Figure 2 is a detail view of the handle at one end of the lever;

Figure 3 is a side view of the handle; and

Figure 4 is a detail view of an alternative construction of handle.

Referring now to Figure 1 of the drawings, there is shown a floor mounted handbrake lever 1 which is mounted for pivotal movement about a substantially horizontal axis 2. An arcuate ratchet plate 3 is fixedly mounted on the floor 4 of the motor vehicle body and has ratchet teeth 5 with which a pawl mechanism of the handbrake lever 1 can co-operate.

The pawl mechanism of the handbrake lever 1 includes a pawl 6 which is mounted for pivotal movement relative to the handbrake lever 1 about an axis 7. The operating mechanism for the pawl 6 includes a reciprocatory rod 8 which is operable by a push-button in the handle of the handbrake lever 1, the push-button mechanism being shown in more detail in Figure 2.

The handle portion of the handbrake lever includes a Tee-piece handle 9 which is fitted over the upper end of the lever 1. The handle 9 is formed by die-casting or plastics moulding and, as shown in Figure 2, it is screwed on to the upper end of lever 1 and is locked by a nut 10. In the case of the handle 9 being a plastics moulding, an internally threaded metal insert 11 is used.

As mentioned above, the rod 8 is mounted for reciprocatory movement and, to this end, its upper end 12 is secured, by pin 13, to a member 14 slidably mounted in the upper end of lever 1. A compression spring 15 acts between an annular plate 16 located in the outer casing of the lever 1 and the lower end of slidable member 14. Therefore, spring 15 acts so as to urge slidable member 14 upwardly and outwardly relative to the casing of handbrake lever 1.

The upper or outer end 17 of slidable member 14 is rounded and engages in a cam surface 18 of a push-button 19. The push-button 19 is mounted for slidably movement within the handle 9 and is normally urged to the right as seen in Figure

2 by a compression spring 20 acting between an end of the handle 9 and the push-button 19.

5 It will be evident from Figures 1 and 2 that compression spring 15 acts usually to urge the slidable member 14 attached to rod 8 upwardly or outwardly relative to brake lever 1 so as to cause the pawl 6 to be held in engagement with the ratchet teeth 5, thereby to hold the handbrake lever 1 in any chosen angular setting about its axis 2. Two positions of the lever are shown in Figure 1, namely a brake release position and a substantially upright brake operating position, though the handbrake in the latter position is in need of adjustment so that, preferably, the "on" position of the handbrake is further away from the front of a seat cushion 21. When it is desired to release the pawl 6 from the ratchet teeth 5, the push-button 19 need only be pushed inwardly within its passage in handle 9 so that the cam surface 18 pushes the slidable end member 14 downwardly. This acts through rod 8 to pivot the pawl 6 in a clockwise direction about its axis 7 as seen in Figure 1 to disengage the pawl 6 from one of the ratchet teeth 5. The handbrake lever 1 can then be moved to any desired angular position about its axis 2.

30 The seat cushion 21 is shown in Figure 1 in its furthest forward adjusted position and it will be noted that, in this position, the pivotal axis 2 of the handbrake lever is located slightly to the rear of the front of the seat cushion 21.

35 With conventional handbrake levers mounted on the floor or transmission tunnel of a motor vehicle, a problem can exist when a front bench seat or two bucket seats closely adjacent one another are employed. This arises because the handle end of the lever may foul with the front edge of the cushion when it is desired to move the handbrake lever to the "on" position. However, it will be noted that the handbrake lever 1 comprises two interconnected mutually inclined portions 22 and 23, the handle portion 23 being bent rearwardly of portion 22 in the "on" or brake operating position of the lever. Moreover, it will be noted that the joint between the two portions is located in the region of the front edge of the seat cushion 21, when the lever is in the "on" position, so that handle portion 23 partly bends around the front of the seat cushion. A nylon or rubber tube 24 surrounds a bent portion of rod 8 located adjacent the joint between lever portions 22 and 23 to prevent rattling of the rod 8 and also to prevent chafing with the side walls of the handbrake lever 1.

60 The handbrake lever 1 may be mounted on the transmission tunnel, for example on a side wall of the transmission tunnel, or it may be mounted on the floor of the vehicle near the transmission tunnel; or it may be

mounted on a side wall of the tunnel and on the floor.

An alternative construction of handbrake lever handle is shown in Figure 4. This comprises a Tee-piece handle 25 which may be formed by die-casting or as a plastics moulding integral with the handbrake lever 1. With this construction, the handle 25 is fitted over two annular ridged portions 26 and 27 formed in the upper end of the handbrake lever.

The embodiment of handbrake lever described herein will not be prevented from being operated when the vehicle front seat is in its furthest forward adjusted position. Moreover, it will still be possible for the driver to reach the handbrake to move it from its "off" position to its "on" position even when he is secured to the seat by a safety belt.

WHAT WE CLAIM IS:—

1. A motor vehicle having a handbrake lever pivotally mounted on the floor and/or transmission tunnel of the vehicle, in which the lever is pivotable about a substantially horizontal axis between a brake release position and a brake operating position, and is mounted in such a position relative to the front seat mounting that the lever abuts or nearly abuts, when in a substantially upright position, the front of the seat cushion when the seat is in its furthest forward adjusted position on its mounting; and the lever has a handle portion which is inclined relative to the remainder of the lever so that it extends at least partly around the front of the seat cushion, in its furthest forward position, when the lever is in the substantially upright position.

2. A motor vehicle according to claim 1, in which the handle portion of the lever includes a Tee-piece.

3. A motor vehicle according to claim 2, in which a push-button is slidable within one arm of the Tee-piece to operate a hand brake release mechanism.

4. A motor vehicle according to claim 2 or 3, in which the Tee-piece is screwed onto the upper end of the hand brake lever.

5. A motor vehicle according to claim 2 or 3, in which the Tee-piece is fitted over an annular ridged portion formed in the upper end of the handbrake lever.

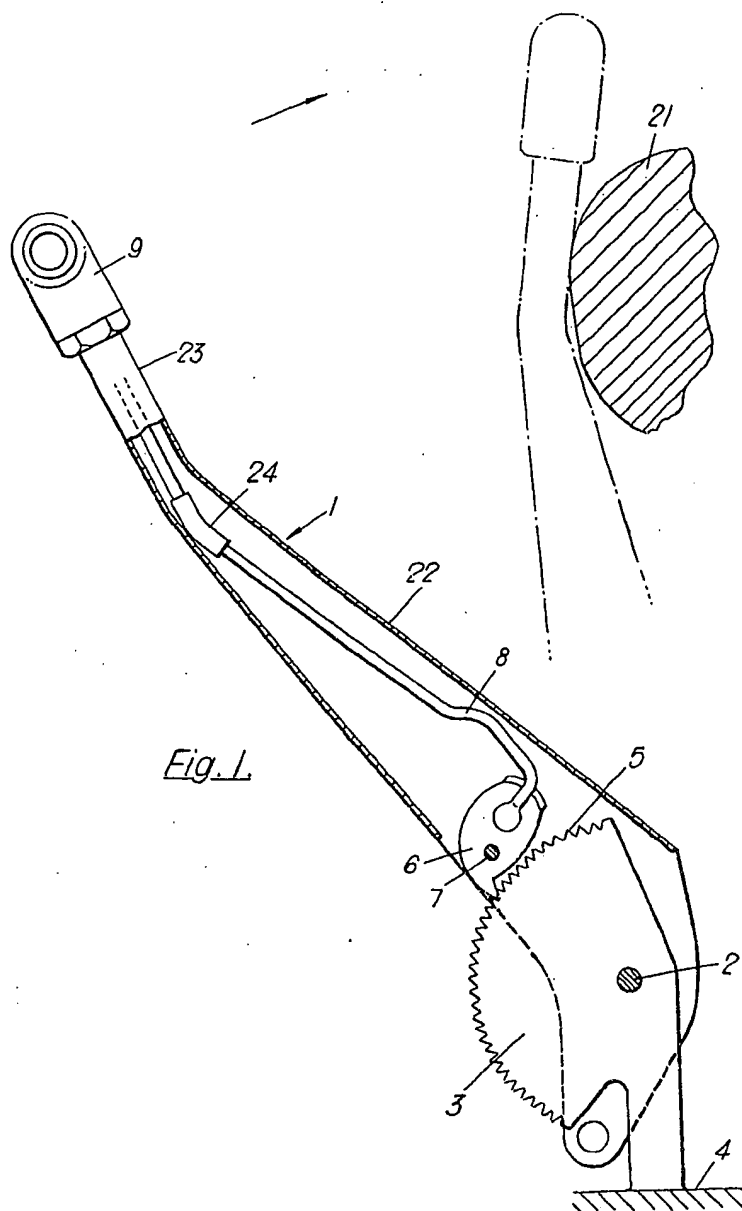
6. A motor vehicle having a hand brake lever pivotally mounted on the floor and/or transmission tunnel of the vehicle substantially as hereinbefore particularly described with reference to, and as shown in Figures 1 to 3 of the accompanying drawings.

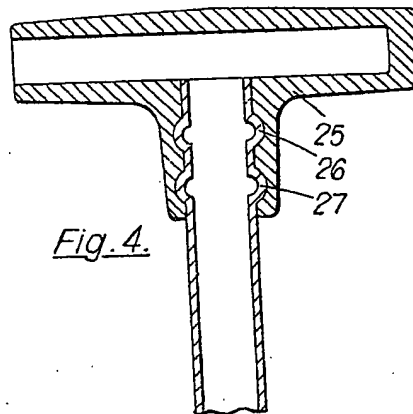
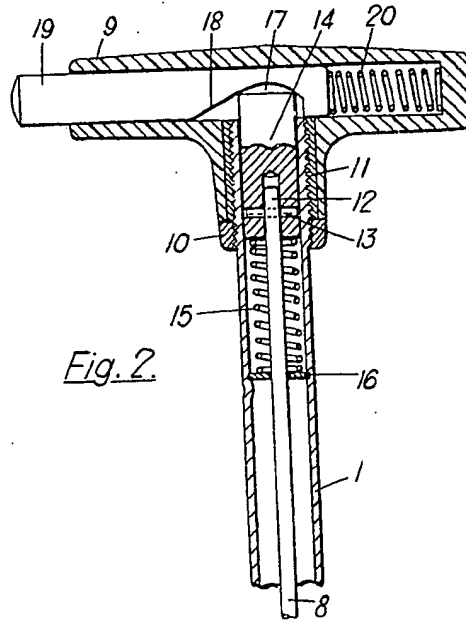
7. A motor vehicle having a handbrake lever pivotally mounted on the floor and/or transmission tunnel of the vehicle substantially as hereinbefore particularly de-

scribed with reference to, and as shown in
Figures 1 to 3 as modified by the construction
of Figure 4 of the accompanying drawings.

D. H. O. WORKMAN,
Chartered Patent Agent.

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*Fig. 3.*